7. Josey

Program Name: Josey.java **Input File: josey.dat**

While doing assigned geography reading, Josey came across a surprising discovery: there are only two doubly-landlocked countries on Earth! A country is landlocked if it has no borders with the ocean. A country is doubly-landlocked if all its borders are with landlocked countries. Note that by definition, all doubly-landlocked countries are landlocked themselves. Using the international borders on Earth in late 2019, Josey noted that only Liechtenstein and Uzbekistan are doubly landlocked.

Josey is now wondering which countries are doubly landlocked in the lands of fantasy novels. Since many fantasy novels don't come with globes, Josey has instead written down every occurrence of two neighboring nations in the book, as well as any mention of a nation bordering the ocean. Given this list of borders, can you help Josey find which nations are doubly-landlocked?

Input: The first line of input has a positive integer T, the number of test cases, at most 20. Each test case begins with a single positive integer B, the number of borders Josey has found. B is at most 1,000. The following B lines each contain two space-separated strings, the entities on either side of the border. Entities are either the names of countries or the string "OCEAN", representing the ocean. All country names are at most 20 characters long, and contain only uppercase letters. It is guaranteed at least one country has a border with the ocean.

Output: For each test case, first output K, the number of doubly-landlocked countries. On the subsequent K lines, output the names of the doubly-landlocked countries in lexicographical order. Format the cases as in the samples.

Sample Input:

```
3
13
LIECTENSTEIN SWITZERLAND
SWITZERLAND AUSTRIA
AUSTRIA LIECTENSTEIN
ITALY SWITZERLAND
SWITZERLAND FRANCE
FRANCE ITALY
ITALY OCEAN
OCEAN FRANCE
AUSTRIA SLOVENIA
SLOVENIA OCEAN
GERMANY AUSTRIA
GERMANY SWITZERLAND
OCEAN GERMANY
7
OCEAN ONE
ONE TWO
TWO THREE
THREE FOUR
FOUR FIVE
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```
FIVE SIX
SIX OCEAN
13
VALE CROWNLANDS
WESTERLAND REACH
REACH STORMLANDS
OCEAN DORNE
STORMLANDS DORNE
RIVERLANDS WESTERLAND
RIVERLANDS NORTH
OCEAN VALE
OCEAN CROWNLANDS
WESTERLAND OCEAN
CROWNLANDS RIVERLANDS
RIVERLANDS OCEAN
REACH OCEAN
```

Sample Output:

```
Case #1: 1
LIECTENSTEIN
Case #2: 2
FOUR
THREE
Case #3: 0
```